which is drawn from them in directions other than that of their orbits. Schiaparelli maintains most distinctly that the tails of comets and meteoric aggregates are not identical.

Professor Zöllner points out that if we are not to suppose that the physical constitution of both phenomena is the same, there only remains their identity of origin as an explanation of the remarkable coincidence of these bodies in space. Pursuing this argument and accepting its veracity, there is no reason to disbelieve the materials of which they are formed, to be the same. Schiaparelli supposes the nuclei of comets to consist of a solid substance, which being subject to a kind of "weathering process," finally becomes broken up into separate pieces, which are turned into a meteoric swarm by the attraction and atmospheric resistance of a large planet. To this effect he again quotes Schiaparelli. Further on he expresses it as his opinion that comets and meteorites are the remains of planets, the former being their fluid and the latter their solid constituents. It must be left to future observers to decide whether the apparent disappearance of Biela's comet has any connection with the rich fall of stars observed on November 27, last year.

It is possible that the vapour left in consequence of the gradual evaporation of a comet would condense, in the absence of any powerful centre of attraction, into a number of separate centres, as a cloud is dissolved into raindrops on the increase of cold. In this way the condensed portions of cometary vapour would present the phenomenon of numerous shooting stars as they penetrate the earth's atmosphere in a solid or perhaps still fluid condition.

PHYSICO-CHEMICAL RESEARCHES ON THE AQUATIC ARTICULATA *

IN NATURE, vol. iv. p. 245, we gave a brief notice of some investigations M. Plateau had been making on the above subject. Since that time he has been continuing his researches in the same direction, and sends us an abstract of the results so far as concerns three problems in the life of aquatic Articulata.

I. Experiments to ascertain the length of time that aquatic insects can remain under water without coming to the surface to breathe.

The swimming aquatic Articulata which breathe air come frequently to the surface to renew their supply. The questions, How long may they with impunity remain submerged? what is their power of resisting asphyxia, as compared with that of terrestrial insects? are answered by the following experiments. At the bottom of an open vessel, of one litre capacity, full of ordinary fresh water, is placed a very small vessel, containing about 200 cubic centimetres. A piece of cotton netting so covers the mouth of the latter, that an insect, placed in the small vessel, is in reality in the general mass of the water, but cannot ascend to the surface. Terrestrial insects placed in these conditions, impelled by their specific lightness, rise to the lower surface of the network; the movements of their legs soon cease, they do not appear to suffer, and they quickly grow torpid. The Coleoptera and aquatic Hemiptera, on the contrary, instead of submitting passively to their fate, endeavour to quit their prison, swim rapidly about, exert themselves to come to the surface, and keep struggling until their strength is enfeebled, and end by lying at the bottom as if dead.

In order to recover from its state of general torpidity an insect which has been submitted to prolonged immersion, it is necessary, after having taken it out of the water, to place it upon absorbing paper. If the time of its immersion has not passed a certain limit, the animal gradually recovers its energy, retaining no sensible trace of the experiment to which it has been submitted. M. Plateau repeated the experiment upon many individuals and for various lengths of time, for the purpose of discovering, in the case of each species, the limit of time beyond which immersion caused the death of the insect. He arrived at two curious conclusions, supported by a great number of trials :—

1. The terrestrial Coleoptera recovered from complete submersion continued for a very long time, in several cases for 96 hours. 2. The aquatic swimming Coleoptera and Hemiptera, far from presenting a greater resistance to asphyxia by submersion than the terrestrial insects, in most cases succumbed very much sooner.

The cause of this unexpected inferiority in the case of the aquatic insects M. Plateau thinks is due exclusively to their greater activity in the water, causing as a consequence a more rapid loss of oxygen.

II. Influence of Cold: Effects of Freezing.

The results of M. Plateau's experiments in this direction are that the aquatic Articulata of the latitudes of Belgium exist for an indefinite period in water maintained at zero (centigrade) by means of melting ice; while they cannot remain alive in ice for any length of time—not for half an hour at the utmost. The latter phenomenon appears to be accounted for by the fact that the insects are completely deprived of all power of motion, thereby losing completely their animal heat.

III. Action of Heat.

Under this head M. Plateau tries to show the maximum temperature of water in which fresh-water Arachnoids can live. He finds that the highest temperature they can endure without injury oscillates between $33^{\circ}\cdot5$ and $46^{\circ}\cdot2$ centigrade. Comparing these results with those which have been obtained by experimenting with animals belonging to other groups, M. Plateau finds that the greatest temperature which aquatic vertebrata, articulata, and molluscs can support probably does not exceed 46° centigrade.

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* By M. Felix Plateau.

NOTES

WE have received a communication from Dr. Rein, Director of the Lenckenberg Society of Naturalists at Frankfort, which amusingly illustrates the perils that accompany the honours of the translation into a foreign language of a scientific work. Our informant relates that the well-known publisher, M. R. Oppenheim, of Berlin, having recently obtained the sanction of Mr. Poulett Scrope for the publication of a German translation of his work on "Volcanoes," of which a new issue lately appeared in this country, confided the work of translation to Prof. G. A. von Klöden, who accordingly performed the task. The translation was printed, together with a preface written by M. von Klöden himself—which preface, in the hurry of business, and in reliance, of course, on the good faith of the translator, the publisher forebore from examining. The volume in due course appeared, and was circulated by the publisher; and not till then was it discovered that the preface aforesaid consisted of a severe and indeed bitter critique of the work to which it was prefixed, and of the author's views as therein stated of the theory of volcanic energy, and its external development in the formation of cones and craters, &c. The explanation is that Prof. von Klöden happens—unluckily for the author whose work he undertook to translate—to have been all his life an earnest advocate and teacher of the famous "Erhebungs-Krater," or "upheaval crater" theory of Humboldt and Von Buch, which Mr. Scrope, together with Sir C. Lyell, Constant Prevost, and other geologists have persistently opposed, and are, we believe, generally considered to have satisfactorily refuted. Of course it is open to Prof. von. Klöden to expound and defend his own opinion on this subject to the fullest extent in any independent publication; but it does seem to be stretching the liberty of free expression on scientific questions in an unprecedented manner, when a gentleman employed to translate a scientific work takes advantage of the opportunity to append to the translation, in the disguise of a preface, a pamphlet of nineteen pages containing an elaborate refutation, according to his own ideas, of the bulk of the views contained in the work itself. Mr. Scrope, we understand, on becoming aware of this strange conduct of Prof. von Klöden, has endeavoured to meet the attack thus unfairly made on his work, by circulating as widely as possible through the scientific world of Germany, a translation of his essay on the formation of volcanic cones and craters, originally read before the Geological Society of London in February 1859, and published in the journal of the Society for that year, a paper in which the theory of "Erhebungs-Kratere" was amply discussed. But even here the author appears to have had but scant justice done to him, if it be true, as Dr. Rein assures us, that "the German of this translation is *very bad!*"

AN Icelandic gentleman sends to the *Scotsman* an account of the eruption of the Skaptar Jokull in Iceland, which took place in January last. On January 9, about three o'clock A.M., there was observed from Reykjavik a great fire in the E.N.E. The fire shot up like lightning, displaying beautiful evolutions in combination with the electricity above. So bright was it, that during the dark morning hours it was thought it must be very close to Reykjavik. But when daylight dawned, and the mountains could be discerned, a thick and heavy column of vapour or steam was observed far in the background, beyond all the mountains, so that it was clear that it was far off, and, according to the direction, it seemed most likely to be in Skaptar Jokull, the west part of Vatna Jokull—the great waste of glaciers in the east and south of the island. Morning and night this grand display was visible during the 9th, 10th, 11th, and 12th, and during the day the column of steam and smoke stood high in the sky. All agreed that the eruption must be in Skaptar Jokull, and from various observations it was concluded that the position of the crater ought to be between 67° 7′ and 67° 18′ deg. north lat., and 30° 45′ and 30° 55′ west long. from the meridian of Copenhagen. In the east, near Berufjord, some shocks were felt, and fire was seen from many farms. Ashes, too, had fallen over the north-east coast so abundantly that pasture fields were covered, and the farmers had to take their sheep into the huts and feed them. In the south, however, no earthquakes were felt, or noises heard in the earth, as far as Markarfljol (near Eyjafjalla Jokull). Nowhere has been observed any fall of ashes or dust, but all aver a bad smell was felt, which was also the case in Reykjavik on the forenoon of the 10th. At Reykjavik the air was felt to be very close, with a smell of sulphur and powder. No change was observed in the sun, moon, &c. The sky was clear all these days. The direction of the wind was from N.W.—W.S.W., and the weather fine.

BARON LIEBIG is seriously ill, and on the 15th inst. there had been a great change for the worse in his condition.

ON Tuesday, Dr. James Murie, late Prosector to the Zoological Society, was unanimously elected by the Town Council of Edinburgh, Professor of Anatomy and Zootomy to the Veterinary College of that city, *vice* Professor Davidson, M.D., deceased.

PROF. ANSTED, whose unfortunate accident we noticed last week, has recently received from the King of the Greeks the brevet and insignia of the Hellenic order of the Sauveur, of which he has been nominated an officer, in recognition of his services in reference to the Laurium question.

M. LOEWY has been elected a member of the French Academy of Sciences in room of the late M. Delaunay.

A COMMITTEE was formed last autumn with a view to secure some provision for the five children who were left unprovided for by the untimely death of Mr. John Cargill Brough. A meeting of this Committee was held at the London Institution on Tuesday last, and the report of the Honorary Secretaries showed that the subscriptions amounted to a sum which, after deducting all expenses, will stand at nearly 2,000*l.* In this sum are included a grant of 150*l.* from the Royal Bounty Fund, 200*l.* contributed by members of the Savage Club, and nearly 400*l.* collected in answer to an appeal to the Pharmaceutical Chemists. A deed of trust of the usual character was approved by the Committee, and trustees were appointed. Votes of thanks were passed to Mr. McArthur, M.P., who has given a presentation to Christ's Hospital, to Mr. Deputy Webster, and to Sir John Lubbock, Bart., M.P., F.R.S., who has kindly acted as treasurer of the fund. The secretaries stated, in concluding their report, that the names of the gentlemen who have acted on the Committee, as well as the kindly expressions of sympathy which have from time to time reached them, afford evidence of the respect and affection in which Mr. Brough's memory is held.

AMONG the candidates for the Professorship of Anatomy to the Royal Academy are Dr. B. W. Richardson, F.R.S., and Mr. John Marshal, F.R.S.

DR. B. W. RICHARDSON, F.R.S., has been elected by the President and Council of the Royal Society, Croonian Lecturer on the subject of muscular motion.

THE third part of the great map of Switzerland ("Topographischer Atlas der Schweiz"), containing the sheets Binnenthal, Helsenhorn, Andermatt, Six Madun, S. Gotthard, Faido, Olivone, Hinterrhein, Mesocco, Jungfrau, Adelboden, and Lenk, has recently been issued at Berne. These sheets are all on the scale of $\frac{1}{50000}$. Those called Andermatt and S. Gotthard have a special and general interest at the present time from embracing the course of the Great St. Gotthard tunnel, and exhibit in the clearest manner, by means of their contour lines, the nature and altitudes of the overlying land. Thirty-eight sheets are now published out of the 546 which will compose this magnificent map.

MR. E. L. LAYARD, H.M. Consul at Para, well known for his zoological researches in different parts of the world, has returned to England, resigned his consulate in that place, and accepted the charge of the British interests in the Fiji Islands. During the short time he has held his office in South America, he has made a valuable collection of birds, of which we understand an account will be given in one of the forthcoming numbers of the *Ibis*.

THE new gate to the Zoological Society's Gardens in the Albert Road, opposite Primrose Hill, and the new canal bridge, opened on Easter Monday for the first time, were found very convenient to those of the 42,320 visitors on that day who arrived from the north, as they were saved the trouble of going over the rather out-of-the-way bridges of the Regent's Canal, which they previously had to do.

WE understand that Mr. Severzow, a well-known Russian naturalist of Moscow, is preparing a work on the zoology of the vertebrata of Turkestan, which will be accompanied with illustrations of the new and interesting species which have been the first-fruits of the new Russian Expedition and Annexations in that part of Asia.

THE Lucasian Professor of Mathematics (Mr. Stokes) at Cambridge, will deliver a course of lectures on hydrostatics, hydrodynamics, and optics, commencing Friday, April 25, and they will be continued, with a few exceptions, on all week days except Thursday, at the hour of 1 P.M., in the New Museum. Gentlemen who wish to attend are requested to leave their names with Messrs. Deighton. Mr. J. W. Clark will commence his osteological demonstrations in the Museum of Zoology and Comparative Anatomy, on May 12. The Demonstrator of Comparative Anatomy will resume his class for practical work on May 1, and continue the same on Thursday, Friday, and Saturday. Courses of lectures on History, Languages, and the various sciences, will be delivered at Cambridge to women during the Easter Term. The fee for each course is one guinea, but a reduction of one-half may be obtained on application by persons engaged in or preparing for the profession of education.

WE hear that a Natural History Society and Field Club is about to be formed among the members of the Working Men's College, Great Ormond Street. The list of classes in the College for the term commencing April 21, announces a series of Saturday afternoon geological excursions, under the guidance of Mr. Logan Lobley, F.G.S. A course of lectures in Physiology is to be begun by Mr. S. D. Darbishire, M.A., Ball. Coll. Oxf. Mr. T. Hughes, M.P., who is now the Principal, will preside at the meeting with which the term opens on Monday evening next, and to which the public are admitted.

WE have received from Prof. Cope several photographs of the cranium of the hugh horned Proboscidians of Wyoming, named by him *Loxolophodon cornutus*. This genus differs from *Dinoceras* of Marsh, which it very closely resembles in all respects, in having the nasal horn cores flat and horizontal, overhanging the apices of the nasal bones. The maxillary horn cores are also proportionately longer, and are not a continuation in direction of the enormous canine teeth, but are turned somewhat forward. Prof. Cope divides the short-footed Ungulates, or Proboscidians of the North American Eocene, into two families, the Eobasiliidæ and the Bathmodontidæ, the former possessing no incisors and no third trochanter to the femur, the latter having the full complement of incisors and a rudimental third femoral trochanter. He further divides up the Eobasiliidæ into the genera Loxolophodon, Eobasileus, Uintatherium, and Megaceratops, and the Bathmodontidæ into Bathmodon and Metalophodon. From a comparison of the photographs above mentioned with Prof. Marsh's drawing of *Dinoceras mirabilis*, we fail to see any points sufficient to justify their generic separation. On photograph shows clearly that in the molar teeth the outer wall was not present, and that the transverse ridges were fully developed, being straight but not parallel, meeting on the inner border of the tooth to form a >-shaped surface.

THE Museum of Comparative Zoology, of Cambridge, U.S., in addition to the Bulletin of its proceedings, issues a series of "Illustrated Catalogues," in small folio form. In this several valuable papers have already appeared; but by far the finest and most important is one just out of press entitled "A Revision of the Echini," by Alexander Agassiz. This embraces an exhaustive account of the bibliography of the subject, as well as its synonymy, followed by detailed descriptions of the genera and species, both as regards the external form and internal anatomy. It is illustrated by forty-nine plates, of which seven represent the geographical distribution of the various groups of *Echini*, the remainder being devoted to representations of the species. A very important experiment has been made in this work as to the availability of different methods of photographic printing for natural history work, and, we may indeed say, with complete success. About one-third of the illustrations of species are crayon drawings on stone, one-third are Albert-types, prepared under the direction of Mr. E. Bierstadt, of New York, and the remainder are Woodbury-types, executed by Mr. John Carbutt, of Philadelphia. Nothing can exceed the perfection of finish and detail of the plates prepared by both these methods, and we are sure the work will mark an era in the history of scientific publications. The expense of even an approximation to the accuracy of these figures, on stone or metal, would have been enormous.

THE Special Correspondent of the *Daily News* on board the *Challenger*, writing from St. Thomas on the 24th ult., states that the vessel was to proceed on her voyage that afternoon. All the scientific staff had been busy, and a large collection of interesting and beautiful objects had been made. On the previous Saturday morning the *Challenger* stood out to sea for the purpose of making magnetic observations, returning in the afternoon, and mooring in the inner harbour in readiness to sail the next day. Late in the evening, however, the *Challenger* acted the Good Samaritan to a dilapidated ship and her crew, lying fifteen miles off.

PROFESSOR AGASSIZ sends us part of the correspondence which took place between himself and Mr. Anderson, the gentleman who made the princely gift of a beautiful island and 50,000 dollars to Prof. Agassiz, referred to in the letter from a New York correspondent in last week's NATURE. The whole affair has been gone about in the most simple and modest way by Mr. Anderson, who, in a letter to the Professor, hopes the school to be established on Penikese Island "may be destined in future ages not only to afford the required instruction to the youth of our own country, but may be the means of attracting to our shores numerous candidates from the Old World, who may find here, in the school to be established by you, those means of fitting themselves for the teaching of Natural History by Nature herself, which, by a strange oversight, appear to have been overlooked in the schemes (generally so well conceived and executed) of education there."

THE course of twenty-four lectures on Zoology, given during the past winter by Mr. J. E. Taylor, F.G.S., in the Museum, Ipswich, has been a great success. Every Friday night the great hall and galleries have been crowded, the audiences increasing as the lectures advanced, so that latterly upwards of 500 people have been in the habit of attending—a very satisfactory audience for a town of the size of Ipswich.

M. FAYE has written to contradict a report in the *Revue Scientifique* that he had demitted his post of President of the Commission on the Transit of Venus, because he saw that the necessary instruments would not be ready in time. He was compelled to take this step on account of his many other public duties, and declares that he has no doubt whatever of the success of the French preparations.

M. BOILLOT, in making some experiments with ozone, has discovered that a litre of pure oxygen yields only 7 milligrammes of ozone, while the same quantity of air gives 37 milligrammes. Thus, *Les Mondes* says, oxygen mixed with air is in a condition more favourable to its being converted into ozone.

ACCORDING to the *American Artisan*, measures are pending at Washington seeking to secure an international coinage of silver, for the immediate use of nations in America and Europe, now embracing a population of more than one hundred and sixty millions, and for the eventual use of all the civilised countries of the world.

MR. W. F. DENNING of Bristol sends us the following meteorological notes. A correspondent writes him that, on November 27, 1872, he was in latitude 43° 24′ north, and longitude 13° 55′ west, when at about $5^h 30^m$ to 6^h he witnessed a magnificent shower of meteors, which continued without intermission till nearly 8^h. Most of them were colourless, but some were tinted with a pale bluish hue. The seeming directions were from about N.E. by E., true, to S.W. by W., but the sky appeared so full that it was hard to tell. On April 6, at $9^h 8^m$, a meteor nearly as bright as Venus was observed by Mr. Denning at Bristol. Beginning of observed path = R.A. 83°, D. 43°+, end of ditto = R.A. 56°, D. 31°+, length of path = 24°. Duration 1·5 sec. Mr. Denning observed displays of aurora borealis on the evenings of April 1 and 2. On April 1 it was first noticed at $8^h\ 49^m$, when an intense auroral glow pervaded the N. sky and gave an effect similar to moonrise. At $8^h\ 51^m$ a broad streamer became visible, reaching a height of 11°. This streamer was situated 2° N. of β Cassiopeiæ, and appeared to be connected with an auroral arch under Cassiopeia, running from N.W. to N. On the following evening, April 2, the auroral light was again intense in due N.

THE additions to the Zoological Society's Gardens during the last week include a Bacha Eagle (*Spilornis bacha*) from Malacca, presented by Mr. W. Jamrach; a Madagascar Porphyrio (*Porphyrio Madagascariensis*) from Madagascar, presented by Miss Furlonger; a Cuttle-fish (*Octopus vulgaris*) presented by the Brighton Aquarium Co.; a great grey Shrike (*Lanius excubitor*) presented by Mr. Hawkins; a Crested Pelican (*Pelecanus crispus*) from S. Europe, presented by Dr. Doyle; a Vulpine Phalanger (*Phalangista vulpina*); a great Kangaroo (*Macropus giganteus*); a yellow-footed rock kangaroo (*Petrogale xanthopus*); and some Tibetan Wolves (*Canis laniger*) born in the Gardens; two Hunting Crows (*Cissa venatoria*) from India; a Cocoi Heron (*Ardea cocoi*) from the W. Indies; a Broad-banded Armadillo (*Xenurus unicinctus*) from Brazil; two Rock Whiting; a Whiting Pout, two Lump-fish, and six Bream all purchased.

ON AN AIR-BATTERY[*]

THIS battery is founded on a reaction, brought by the authors before the Royal Society[†] last spring, in which it was shown that if pieces of copper and silver, in contact, were immersed in copper nitrate solution in presence of oxygen, a deposit of cuprous oxide took place on the silver plate with a corresponding solution of the copper plate, resulting from the decomposition of the copper nitrate in the manner shown in the following formulæ:—

Before contact is made

$$m\text{Ag} \mid \text{O} \mid \text{Cu}2\text{NO}_3 \mid \text{Cu}2\text{NO}_3 \mid n\text{Cu}$$

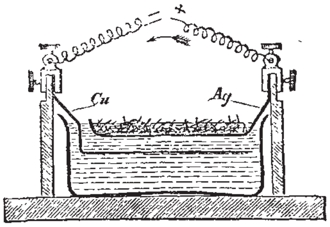
After contact

$$m\text{Ag} \mid \text{Cu}_2\text{O} \mid \text{Cu}2\text{NO}_3 \mid \text{Cu}2\text{NO}_3 \mid (n-2)\text{Cu}$$

It is evident that this action is continuous until either the copper or the oxygen is exhausted.

It was stated in that paper, that a galvanic current passed through the solution from the copper to the silver, and also that this was only one case of a large class of similar reactions.

The battery takes the form of a shallow circular vessel containing the solution, and the plates are arranged horizontally, the silver plate being at the surface. It will be apparent on glancing at the above equations, that the combination of the oxygen only takes place in the neighbourhood of the silver; hence it was evidently desirable to increase as much as possible the proximity of the silver plate to the air, and also the surface exposed by the silver. This was accomplished as shown in the adjoining sketch. The silver has the form of a shallow tray, full of crystals of silver, and perforated to allow the circulation of the copper solution. The tray is arranged so that the crystals should just rise above the surface, and being, of course, always wet, they very much increase the absorbing surface of the liquid. The whole arrangement is put upon a wooden stand, and the plates are attached to two uprights fixed in the stand.



The strength of the copper nitrate solution is 6 per cent. This gives about the maximum of effect; a 24 per cent solution gives only half the current; and a 30 per cent solution gives two-thirds. A solution stronger than 6 per cent. is also apt to produce a deposit of subnitrate instead of suboxide.

The best proportionate areas of the silver and copper-plates was investigated in two series of experiments, in one of which the silver remained the same, while the copper surface was diminished by varnishing, and in the other set the copper remained the same while the silver was diminished. The following table gives the results in the latter case. The deflections are those of a Thomson's galvanometer:—

Proportion of Surfaces		Deflection.		
Copper	Silver.	Expt. 1.	Expt. 2.	Expt. 3.
1	0·25	—	—	7°·5
1	0·5	—	—	16°·0
1	0·75	—	—	21°·0
1	1·0	33°	32°	28°·0
1	1·33	41°	40°	—
1	2·0	56°	54°	—
1	4·0	96°	92°	—

It thus appears that an increase in area of the silver plates causes a proportionate increase in the current. It was also found that heat greatly increases the activity of this cell, a cell giving a deflection of 40 at 20° C., gave one of 250 at 50° C.; and the increase in the higher degrees of this range of temperature was much greater than in the lower.

From the nature of the reaction it might be expected that the current would gradually diminish on account of the using up of the oxygen in the neighbourhood of the silver. Such a diminution always does take place at first—agitating the liquid ought, under these circumstances, to increase the action. It does so.

It might also be expected that upon breaking contact for some time, so as to allow oxygen to diffuse itself from other parts of the solution, the current upon again making contact would be as strong, or nearly so, as before. This also was found to be the case.

An experiment was made by putting a cell, with plates connected by a wire, under a bell-jar full of air over mercury. It was expected that the mercury would rise inside the jar from absorption of the oxygen. The mercury did rise, and the oxygen was so completely removed that a lighted taper was immediately extinguished in the remaining gas. The apparatus used in this experiment was exhibited to the Royal Society.

Comparative experiments were made with aerated and deaërated copper nitrate solution. It was found that the amount of action in the latter case was little or nothing, and what small action there was was clearly attributable to the difficulty of completely excluding air.

Two experiments were made alike in all respects, except that in one case the cell used was filled with a solution simply deprived of oxygen, while the other cell was filled with a solution through which a current of CO_2 was passed for some time. The first was placed in the air, and gave a deflection of 110 rising to 115, but the second was placed in a vessel full of carbonic acid gas, and gave a deflection of 20, which gradually fell to 3.

It was proved experimentally that the cuprous oxide deposited on the silver was compensated by an equivalent solution of the copper plate. The cuprous oxide is sometimes deposited in crystals visible to the naked eye, and shown by a lens to be regular octahedra.

One cell having plates two inches in diameter was found sufficient to decompose such metallic salts as the nitrates of copper, silver, and lead, platinum being used for the negative electrode, and for the positive the same metal as existed in the salt experimented on. Six cells were sufficient to decompose dilute sulphuric acid and dilute hydrochloric acid pretty quickly, copper electrodes being employed.

The theoretical interest of this battery lies in the fact that it differs from all other galvanic arrangements, inasmuch as the binary compound in solution is incapable of being decomposed

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[*] Abstract of paper read at the Royal Society, Thursday, April 3, by J. H. Gladstone, Ph.D., F.R.S., and Alfred Tribe, F.R.S.

[†] Proc. Roy. Soc. vol. 20, p. 290.